

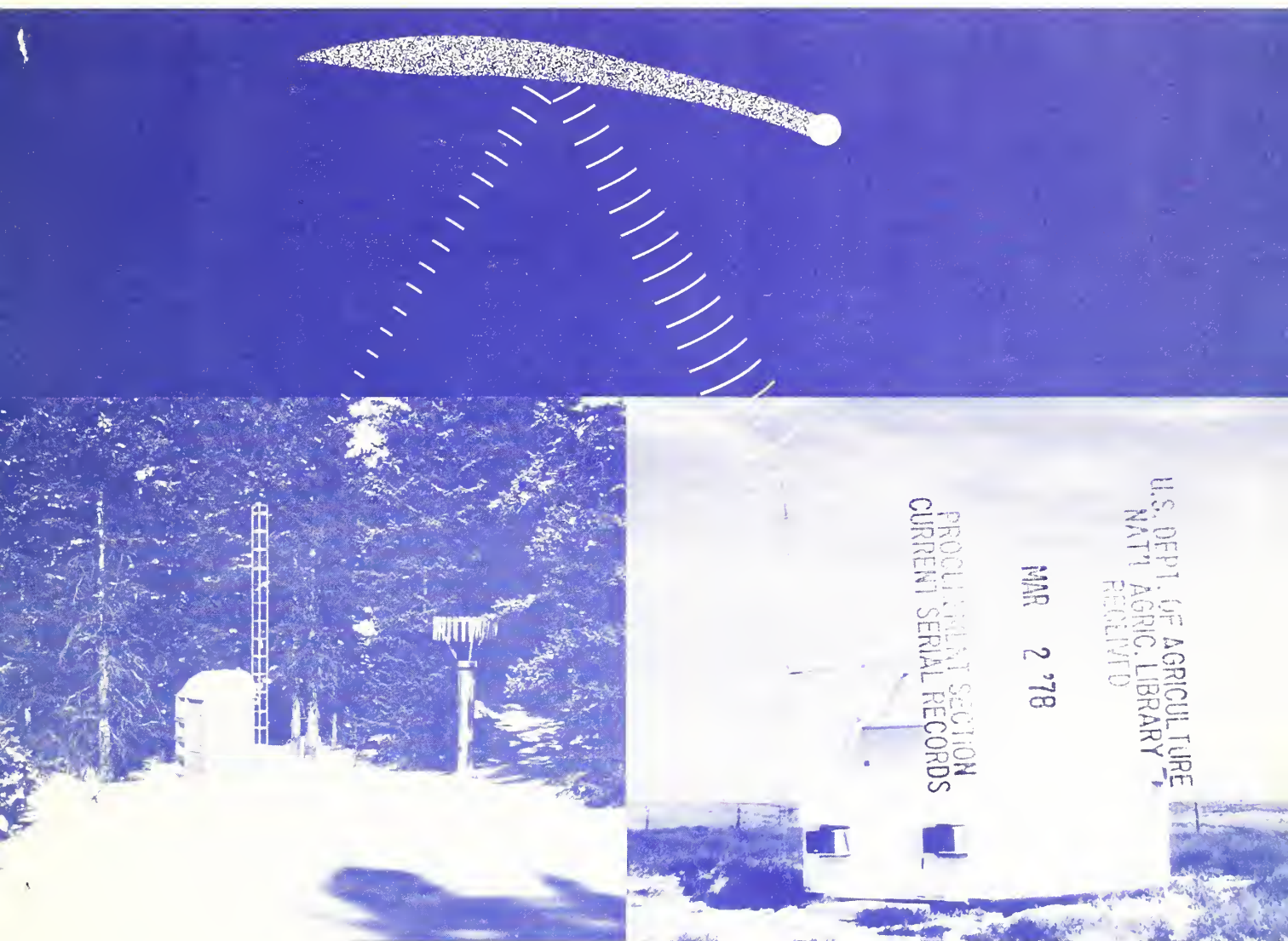
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WATER SUPPLY OUTLOOK FOR WESTERN UNITED STATES

Including Columbia River Drainage in Canada



U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with
CALIFORNIA DEPARTMENT of WATER RESOURCES
and
**BRITISH COLUMBIA DEPARTMENT of
LANDS, FORESTS and WATER RESOURCES**

AS OF
FEB. 1, 1978

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

COVER PHOTO: SOME OF THE DATA IN THIS REPORT HAVE BEEN RECEIVED THROUGH THE SOIL CONSERVATION SERVICE'S NEW SNOTEL SYSTEM WHICH TRANSMITS INFORMATION VIA THE SPACE AGED METEOR BURST METHOD FROM DATA SITES TO MASTER STATIONS LIKE THESE.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1220 S.W. Third Ave., Portland, Oregon 97204
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta T3C 1A6.



WATER SUPPLY OUTLOOK FOR WESTERN UNITED STATES

Including Columbia River Drainage in Canada

ISSUED

FEBRUARY 1, 1978

The Soil Conservation Service coordinates snow surveys conducted by its staff and many cooperators, including the Bureau of Reclamation, Corps of Engineers, Forest Service, National Park Service, NOAA, National Weather Service, Geological Survey, and other Federal Agencies, Departments of State Government, Irrigation Districts, Power Companies, and others.

The Department of Water Resources coordinates snow surveys in California.

The Water Resources Service, Department of Lands, Forests, and Water Resources directs snow surveys in British Columbia.

This report was prepared by the Water Supply Forecasting Unit, Engineering Division, Soil Conservation Service, from data supplied by Snow Survey Supervisors of the Soil Conservation Service in the States of Alaska, Arizona, Colorado and New Mexico, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming.

Data from California was supplied by the Chief, Water Supply Forecast and Snow Survey Unit, Department of Water Resources.






Data from British Columbia was supplied by the Chief, Hydrology Division, Water Investigations Branch, Department of Lands, Forests and Water Resources.

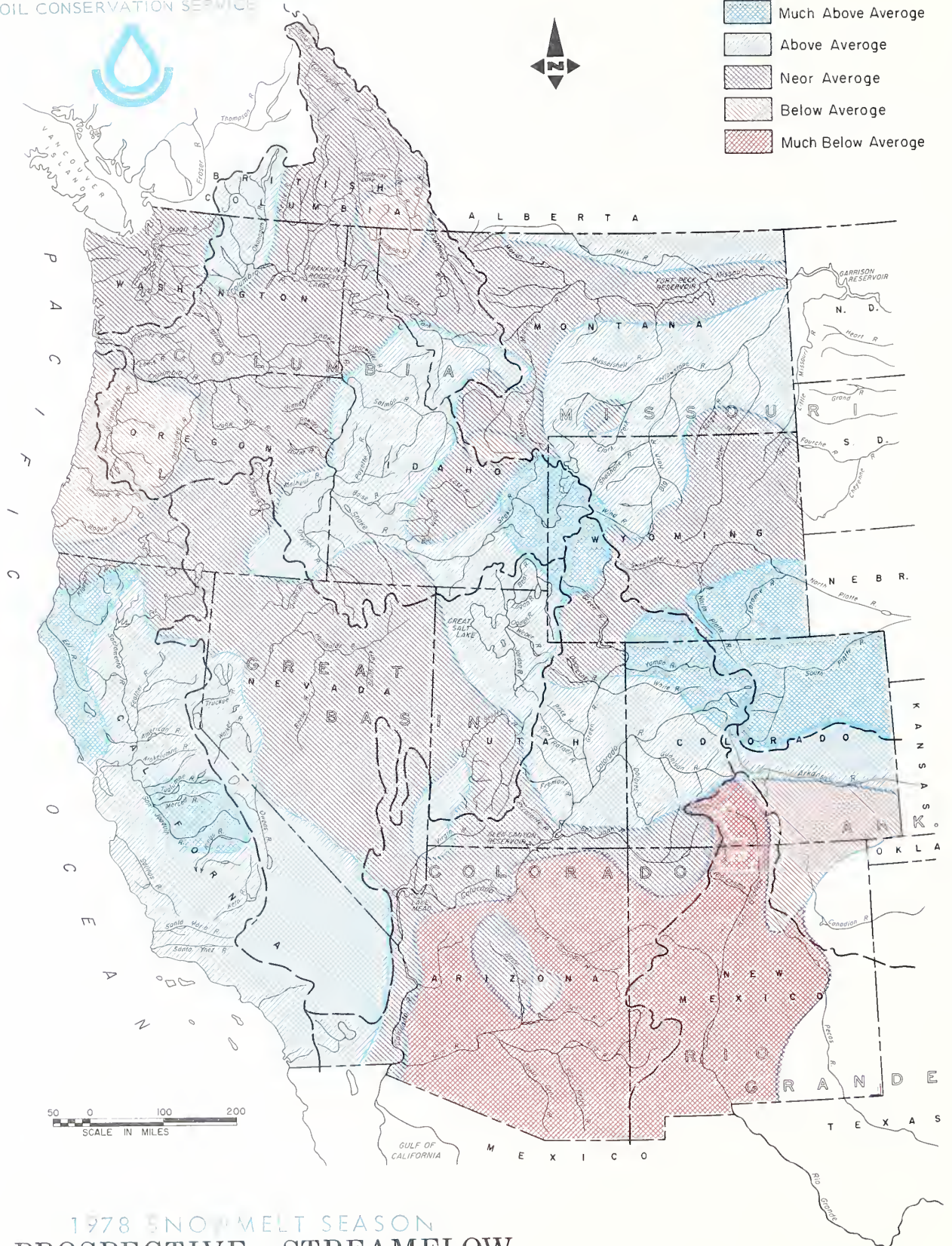
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SOIL CONSERVATION SERVICE
R. M. DAVIS, ADMINISTRATOR

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE



-  Much Above Average
-  Above Average
-  Near Average
-  Below Average
-  Much Below Average



1978 SNOW MELT SEASON
PROSPECTIVE STREAMFLOW
AS OF FEBRUARY 1, 1978

WATER SUPPLY OUTLOOK

1978 SNOWMELT SEASON

FEBRUARY 1, 1978

THE PROSPECT FOR ADEQUATE WATER SUPPLIES NEXT SUMMER ARE GREATLY IMPROVED. THE EXTREME DROUGHT OVER THE WEST HAS BEEN BROKEN. THIS YEAR'S SNOWPACK IS AVERAGE OR BETTER OVER MOST OF THE REGION. MOST RESERVOIR SYSTEMS ARE STILL QUITE LOW, BUT THE STORAGE OF WATER FOR SUMMER USE SHOULD IMPROVE MARKEDLY IN THE NEXT FEW MONTHS.

Snowpack conditions over much of the west are several times heavier than last year at this time. In California, where two years of very light snowpack had caused extreme shortages of water, this year's snowpack is generally 30 to 50 percent heavier than normal, and reservoir storage is being replenished.

The only exception to the optimistic water supply outlook is in Arizona and New Mexico where snowpacks are below normal. The Rio Grande watershed has only about two-thirds of its normal February 1 snowpack. Similar conditions are found on the Salt and Gila drainages in Arizona.

In many mountain areas the February 1 snow surveys revealed snow accumulation as much as 5 to 10 times heavier than last year when the poorest snowpack in recent history was measured. An unusually deep accumulation is now found in northern Colorado where at some data sites this year's pack is the heaviest ever measured.

Streamflow forecasts for the spring and summer snowmelt period indicate that runoff should be average or higher than normal over a wide area of the west. Much above normal yields are forecast for the upper Snake River in Wyoming and Idaho, as well as from some northern Colorado tributaries of the Colorado and Platte basins. Some central California streams are also forecast to yield much above normal flows.

Below normal runoff is expected in much of New Mexico as illustrated by the Rio Grande which is forecast to yield only two-thirds its normal. The Salt and Gila River drainages in Arizona are also forecast to be below normal.

Much of the Cascades and coast range of Oregon has a light snowpack, since many winter storms have been warmer rains rather than cool and snowy. Spring and summer streamflow is forecast to be below average in this region.

Reservoir storage available for use next summer is still below the February 1 average, due mostly to the heavy demands during last year's drought. However, some progress has been made, and with most of the season

for filling these reservoirs yet to come, the storage outlook is expected to improve.

A state by state summary of conditions follows:

ALASKA

The winter snowpack in Alaska, as of February 1, varied from near normal north of the Alaska Range to about 40 percent below normal south of the Alaska Range. However, a major storm which struck south central Alaska during the first week of February has probably raised all below-normal areas to at least average or above.

At the time surveys were conducted--prior to the storm--the upper Cook Inlet and Kenai Peninsula areas had only about 60 percent of their normal snowpack. The upper Susitna pack was near average while below Devil Canyon the snowpack was 70 percent of normal.

The Tanana-Chena watersheds in the interior of the state had 82 percent of their normal, while the Koyukuk had 105 percent of its average pack.

ARIZONA

Until late December there was no snow in Arizona. Since then, however, many light to moderate storms have occurred. Snow accumulations have been heavy along the "Rim" and on the Verde watershed, while the White and Gila Mountains have received comparatively little. The heaviest snow occurred along the "Rim" at Promontory Butte where 37 inches of depth containing 12 inches of water was measured. Warm temperatures and rain during the last storm, however, have caused considerable melt below 7,000 feet.

Based on February 1 snow surveys, snow cover varies from 30 percent above average on the Verde watershed to 40 percent below average on the Gila and Little Colorado watersheds. Snow conditions on the Salt watershed are good on the west side, but very low in the Mt. Baldy area, resulting

SUMMARY OF SNOW WATER EQUIVALENT MEASUREMENTS

FEBRUARY 1, 1978

MAJOR BASIN AND SUB - WATERSHED	WATER EQUIVALENT IN PERCENT OF :		MAJOR BASIN AND SUB - WATERSHED	WATER EQUIVALENT IN PERCENT OF :	
	LAST YEAR	AVERAGE		LAST YEAR	AVERAGE
MISSOURI BASIN			SNAKE BASIN		
Jefferson	348	112	SNAKE above Jackson, Wyo.	463	140
Madison	370	120	SNAKE above Hiese, Idaho	401	149
Gallatin	240	121	Henry's Fork	457	116
Missouri Main Stem	230	131	Southern Idaho Tributaries	1,026	107
Yellowstone	248	127	Big and Little Wood	914	118
Shoshone	315	151	Boise	1,108	114
Wind	579	152	Owyhee	1,036	118
North Platte	263	138	Payette	732	114
South Platte	346	129	Malheur	1,317	124
ARKANSAS BASIN			Weiser	1,225	109
Arkansas	412	143	Burnt	646	71
Cucharas - Purgatoire	96	85	Powder	823	103
RIO GRANDE BASIN			Salmon	710	117
Rio Grande (Colo.)	302	75	Grande Ronde	558	93
Rio Grande (New Mexico)	104	73	Clearwater	336	99
Pecos	93	104	LOWER COLUMBIA BASIN		
COLORADO BASIN			Yakima	1,005	109
Green (Wyo.)	411	150	Umatilla	286	74
Yampa - White	388	159	John Day	608	97
Duchesne	603	112	Deschutes - Crooked	704	77
Price	900	142	Hood	976	60
Upper Colorado	377	151	Willamette	364	41
Gunnison	408	130	Lewis	894	47
San Juan	271	84	Cowlitz	1,016	85
Dolores	468	129	PACIFIC COASTAL BASIN		
Virgin	400	147	Puget Sound	1,215	85
Gila	136	63	Olympic Peninsula	-	54
Salt	122	76	Umpqua - Rogue	322	62
Verde	139	130	Klamath	656	101
GREAT BASIN			Trinity	690	138
Bear	624	140	CALIFORNIA		
Logan	721	134	CENTRAL VALLEY		
Ogden	659	131	Upper Sacramento	670	134
Weber	480	116	Feather	460	138
Provo - Utah Lake	472	119	Yuba	690	138
Jordan	552	112	American	504	126
Sevier	319	120	Mokelumne	496	124
Walker - Carson	779	150	Stanislaus	675	135
Tahoe - Truckee	605	132	Tuolumne	705	141
Humboldt	685	117	Merced	745	149
Lake Co. (Oregon)	676	109	San Joaquin	795	159
Harney Basin (Oregon)	1,240	160	Kings	648	162
Owens	712	178	Kaweah	524	131
UPPER COLUMBIA BASIN			Tule	385	154
Columbia (Canada)	174	94	Kern	580	174
Kootenai	230	94	<i>Data for California Watersheds supplied by Dept. of Water Resources, and for British Columbia Watersheds by Dept. of Lands, Forests and Water Resources.</i>		
Clark Fork	255	115			
Bitterroot	341	134	<i>Average is for 1958-72 period. California ave- rages are for the period 1931-70. Based on Selected Snow Courses determined by Distri- bution within the Basin. Length of Record and Repetitive Monthly Measurement Schedules.</i>		
Flathead	270	105			
Spokane	292	95			
Okanogan	616	117			
Methow	1,946	106			
Chelan	488	127			
Wenatchee	820	112			

in an overall average of 25 percent below normal.

With the exception of the Verde River, below average runoff is expected again this year. Streamflow forecasts are predicted to be 40 percent of average on the Gila, 50 percent on the Salt, and 96 percent on the Verde.

With the heavy January storms and snow-melt, soil moisture has improved greatly. Surface soil moisture is excellent, although lower levels of the profile are still below average.

Water storage in central Arizona is much below average and much below that in storage last year at this time. The Salt River Project reservoirs contain only one-half of average February 1 amounts. The percent of average in some other reservoirs is as follows: San Carlos, 16; Lake Pleasant, 23; Lyman Reservoir, 45. The situation along the Colorado River is quite different. In spite of the record low runoff in 1977, storage in the Colorado River reservoirs is 142 percent of average.

Due to the poor reservoir storage and low expected runoff, water supplies will be short in most of Arizona. Only along the Colorado River will water supplies be good.

CALIFORNIA

Intermittent heavy rains and snow since mid-December have provided an adequate water supply for drought-weary Californians. Some deficiencies of ground water in storage will linger for several years, but relief has arrived in the form of cancelled water rationing, filling reservoirs, and the anticipated return to more normal water regulation and use. Based on February 1 data, surface water supplies will be normal or above in all areas of the state this year.

Forecasts of runoff for the April through July period range from 101 percent of average for the Pit River to 142 percent of average for the San Joaquin River. The forecasts are based on the assumption that normal precipitation will occur in the months ahead.

Snowpack water content is well above normal in all watersheds except in the Pit River Basin where it is 90 percent of the February 1 average. Snow surveys show that snow-stored water is more than one-and-one-half times normal in the San Joaquin Basin and in Owens Valley on the east slope of the Sierra. In North Coast and Sacramento Valley basins the snowpack is already about 90 percent of the average total seasonal

accumulation, and the pack now equals the total seasonal accumulation in San Joaquin and Lahontan area basins--with two months of the snow accumulation period still remaining. In the San Joaquin through the Kern River basins the snowcovered area, as determined from satellite imagery, is 30 percent greater than last year at this time. The satellite imagery also reveals a 38 percent increase in snowcovered area on the Feather River Basin over that of last year, and February 1 snow surveys indicate the pack is storing 138 percent of average water content, compared to 30 percent of average one year ago.

Precipitation during January pelted the entire state with above normal amounts ranging up to 200 percent of the January average in many areas and exceeding 500 percent at some points in the Colorado Desert area. Added to the above normal precipitation of late December, the six-week stormy period boosted total water year precipitation to 135 percent of average over the state.

Reservoir storage on February 1 is still below average but prospects are now good for most reservoirs to fill to normal levels by June 1. In the Sacramento Valley, storage is 85 percent of average or 30 percent above what it was on February 1 of last year. In the San Joaquin Valley, storage is up 10 percent from last year at this time and now stands at 65 percent of average.

COLORADO

The outlook for a good water supply this coming spring and summer is much brighter than last year as a result of heavy snows on the state's high mountain watersheds during December and January. The only exceptions to this optimistic outlook are in the headwaters of the Rio Grande where the snowpack is 75 percent of normal. A continuing series of storms moving through Colorado during December and January brought almost daily snowfall at higher elevations along the Continental Divide. The result is a heavy snowpack, and most streams are forecast to flow 130 percent of normal during the spring runoff.

The mountain snowpack ranges from a high of 165 percent of average on drainages in the northwestern and central portion of the state to the above referenced low of 75 percent of normal on the headwaters of the Rio Grande. Record maximum depths for this date were measured at a few data sites. This is a complete reversal of last year's conditions when minimum records were established. Many of the state's mountain watersheds have snowpacks which are 400 percent of last year's readings at this time.

SELECTED STREAMFLOW FORECASTS FEBRUARY 1, 1978

STREAM AND STATION	FORECASTS THIS YEAR		Forecast Period	Last Year's Flow In (1,000 A.F.)
	Flow In (1,000 A.F.)	Percent of Average		
SASKATCHEWAN				
St. Mary near Babb, Montana <u>1/</u>	475	97	April-Sept.	
UPPER MISSOURI				
Beaverhead near Grant, Montana <u>2/</u>	105	72	April-Sept.	54
Big Hole near Melrose, Montana	710	95	April-Sept.	
Madison near Grayling, Montana <u>3/</u>	505	105	April-Sept.	
Gallatin near Gateway, Montana	515	108	April-Sept.	
Sun at Gibson Dam, Montana <u>4/</u>	610	103	April-Sept.	205
Belt near Monarch, Montana	150	122	April-Sept.	
Marias near Shelby, Montana <u>5/</u>	565	101	April-Sept.	56
Missouri near Landusky, Montana <u>6/</u>	5,000	106	April-Sept.	
near Williston, North Dakota <u>7/</u>	13,300	113	April-Sept.	
S.Fk. Musselshell above Martinsdale, Montana	64	128	April-Sept.	
Milk at Eastern Crossing, Montana	315	110	March-Sept.	
Yellowstone at Yellowstone Lake Outlet, Wyo.	950	116	April-Sept.	387
at Corwin Springs, Montana	2,260	113	April-Sept.	1,129
at Miles City, Montana <u>8/</u>	7,100	111	April-Sept.	
Clarks Fork Near Belfry, Montana	715	118	April-Sept.	
Shoshone below Buffalo Bill Res., Wyoming <u>9/</u>	1,040	126	April-Sept.	381
Wind near Dubois, Wyoming	152	149	April-Sept.	42
at Riverton, Wyoming <u>10/</u>	830	125	April-Sept.	292
below Boysen Res., Wyoming <u>11/</u>	1,160	115	April-Sept.	479
Bull Lake Creek near Lenore, Wyoming	174	96	April-Sept.	105
Little Popo Agie near Lender, Wyoming	43	90	April-Sept.	20
Tensleep near Tensleep, Wyoming	76	96	April-Sept.	
Medicine Lodge near Hyattville, Wyoming	26	124	April-Sept.	
Shell Creek near Shell, Wyoming	85	116	April-Sept.	55
Big Horn near St. Xavier, Montana <u>8/</u>	2,150	116	April-Sept.	
Tongue near Dayton, Wyoming	120	106	April-Sept.	107
No. Fork Powder near Hazelton, Wyoming	11	110	April-Sept.	7.7
PLATTE				
North Platte at Northgate, Colorado	336	140	April-Sept.	63
Encampment near Encampment, Wyoming	170	121	April-Sept.	55
Deer Creek at Glenrock, Wyoming	21	80	April-Sept.	30
Laramie Riv. & Pioneer Canal, nr Woods, Wyo. <u>12/</u>	165	130	April-Sept.	67
Big Thompson at Drake, Colorado <u>13/</u>	140	131	April-Sept.	
Clear at Golden, Colorado <u>14/</u>	170	134	April-Sept.	
St. Vrain at Lyons, Colorado <u>15/</u>	100	133	April-Sept.	
Cache LaPoudre near Fort Collins, Colorado <u>16/</u>	310	126	April-Sept.	
ARKANSAS				
Arkansas at Salida, Colorado <u>17/</u>	370	118	April-Sept.	
Cucharas near LaVeta, Colorado	8	80	April-Sept.	
Purgatorie at Trinidad, Colorado	30	79	April-Sept.	
RIO GRANDE				
Rio Grande near Del Norte, Colorado <u>18/</u>	310	66	April-Sept.	
at Otowi Bridge, New Mexico <u>19/</u>	350	66	March-July	
Conejos near Mogote, Colorado <u>20/</u>	140	76	April-Sept.	
El Vado Res., Inflow, New Mexico	140	74	March-July	
Pecos at Pecos, New Mexico	26	63	March-July	
UPPER COLORADO				
Colorado, Grandby Res. Inflow, Colorado <u>21/</u>	300	132	April-Sept.	
near Dotsero, Colorado <u>22/</u>	1,900	132	April-Sept.	
near Cameo, Colorado <u>23/</u>	3,000	126	April-Sept.	
near Cisco, Utah <u>24/</u>	3,660	129	April-July	535
Lake Powell Inflow, Arizona <u>25/</u>	8,362	122	April-July	1,130
Roaring Fork at Glenwood Springs, Colorado <u>26/</u>	820	115	April-Sept.	
Uncompahgre at Colona, Colorado	160	119	April-Sept.	

Forecasts in California provided by Department of Water Resources.
 Average is for 1958-72 period except California. California is computed for 1921-70 period.
 Forecasts assume average Effective Climate Conditions from Date Through Snow Melt Season.
 Explanatory Notes on Forecasts listed on Inside Back Cover.

SELECTED STREAMFLOW FORECASTS

FEBRUARY 1, 1978

STREAM AND STATION	FORECASTS THIS YEAR		Forecast Period	Last Year's Flow In (1,000 A.F.)
	Flow In (1,000 A.F.)	Percent of Average		
UPPER COLORADO (continued)				
Gunnison, Blue Mesa Res. Inflow, Colorado <u>27/</u> near Grand Junction, Colorado <u>28/</u>	900 1,350	114 114	April-Sept. April-Sept.	
Dolores at Dolores, Colorado	265	114	April-Sept.	
Green at Warren Bridge, Wyoming	415	127	April-Sept.	165
at Green River, Wyoming <u>29/</u>	1,300	131	April-July	279
Flaming Gorge Res. Inflow, Utah <u>27/</u> at Green River, Utah <u>30/</u>	1,241 3,441	106 121	April-July April-Sept.	233 883
Big Sandy near Big Sandy, Wyoming	60	105	April-Sept.	26
Yampa at Steamboat Springs, Colorado near Maybell, Colorado	380 1,250	139 138	April-Sept. April-Sept.	
Little Snake near Dixon, Wyoming	420	140	April-Sept.	55
White near Meeker, Colorado	370	125	April-Sept.	
Strawberry at Duchesne, Utah <u>40/</u>	54	96	April-July	10
Duchesne near Tabiona, Utah <u>31/</u> at Randlett, Utah <u>40/</u>	98 250	94 94	April-July April-July	19 13
Lakefork below Moon Lake, Utah <u>32/</u>	60	87	April-July	30
Uinta near Neola, Utah	70	80	April-July	70
Whiterocks near Whiterocks, Utah	45	78	April-July	24
Price, Scofield Res. Inflow, Utah <u>33/</u>	47	138	April-July	4.2
Cottonwood near Orangeville, Utah <u>34/</u>	47	102	April-July	10
San Juan, Navajo Res. Inflow, New Mexico <u>27/</u> near Bluff, Utah <u>35/</u>	580 882	97 103	April-July April-July	
Animas at Durango, Colorado	450	106	April-Sept.	123
LOWER COLORADO				
Virgin near Virgin, Utah	37	77	April-June	25
Little Colorado above Lyman, Arizona	2.6	25	Jan.-June	1.9
Gila near Solomon, Arizona	50	40	Jan.-May	24.1
Frisco at Clifton, Arizona	26	41	Jan.-May	11.6
Salt at Intake, Arizona	140	51	Jan.-May	82.1
Tonto above Roosevelt, Arizona	25	79	Jan.-May	6.8
Verde above Horseshoe Dam, Arizona	145	96	Jan.-May	52.2
GREAT BASIN				
Bear at Utah-Wyo. State Line	113	101	April-July	41
at Harer, Idaho	313	105	April-Sept.	35
Smith's Fork near Border, Wyoming	150	130	April-Sept.	27
Thomas Fork near Wyo.-Ida. State Line	48	130	April-Sept.	3.8
Logan near Logan, Utah <u>36/</u>	123	109	April-July	34
Ogden, Pine View Res. Inflow, Utah <u>27/</u>	132	120	April-June	14
Weber near Oakley, Utah	114	114	April-June	32
Provo near Hailstone, Utah <u>37/</u>	106	104	April-June	32
Strawberry Res. Inflow, Utah	53	115	April-June	5.7
Utah Lake Net Inflow, Utah	211	101	April-July	
Big Cottonwood near Salt Lake City, Utah	39	108	April-July	19
Beaver near Beaver, Utah	20.7	104	April-July	6.1
Sevier near Hatch, Utah	34	85	April-July	11
near Gunnison, Utah	34	87	April-July	15
So. Fork Humboldt near Elko, Nevada	60	90	April-July	
Humboldt at Palisades, Nevada	125	91	April-July	65
Truckee at Farad, California <u>38/</u>	-	-	-	51
East Carson near Gardnerville, Nevada	250	137	April-July	43
West Carson at Woodsfords, California	70	135	April-July	12
East Walker near Bridgeport, California <u>39/</u>	100	147	April-Aug.	9
West Walker near Coleville, California	200	138	April-July	35
Donner and Blitzen near Frenchglen, Oregon	65	117	Mar.-July	
Silvies near Burns, Oregon	108	115	Mar.-July	11
Chewaucan near Paisley, Oregon	84	97	March-July	12
Deep above Adel, Oregon	78	100	March-July	
Bidwell near Ft. Bidwell, California	-	-	-	
Owens below Long Valley Res., California	-	-	-	

Forecasts in California provided by Department of Water Resources.

Average is for 1958-72 period except California. California is computed for 1921-70 period.

Forecasts assume average Effective Climate Conditions from Date Through Snow Melt Season.

Explanatory Notes on Forecasts listed on Inside Back Cover.

SELECTED STREAMFLOW FORECASTS FEBRUARY 1, 1978

STREAM AND STATION	FORECASTS THIS YEAR		Forecast Period	Last Year's Flow In (1,000 A.F.)
	Flow In (1,000 A.F.)	Percent of Average		
UPPER COLUMBIA				
Columbia at Birchbank, British Columbia 40/ a.	42,900	92	April-Sept.	31,583
at Grand Coulee, Washington 40/ a.	57,200	97	April-Sept.	41,805
below Rock Island, Washington a.	74,900	99	April-Sept.	43,659
Kootenai below Libby Dam near Libby, Montana	6,550	88	April-Sept.	3,976
at Leonia, Idaho	8,100	89	April-Sept.	4,910
Blackfoot near Bonner, Montana	1,110	108	April-Sept.	
So.Fk. Flathead nr Columbia Falls, Montana 40/	2,350	99	April-Sept.	1,255
Flathead at Columbia Falls, Montana 40/	6,400	100	April-Sept.	3,180
near Polson, Montana 40/	7,700	101	April-Sept.	3,600
Clark Fork above Missoula, Montana	2,010	110	April-Sept.	573
near Plains, Montana 40/	13,400	106	April-Sept.	
at Whitehorse Rapids, Idaho a.	14,700	104	April-Sept.	
Bitterroot near Darby, Montana	750	128	April-Sept.	242
Priest near Priest River, Idaho 41/ a.	-	-	-	-
Pend Oreille below Box Canyon, Washington a.	16,900	106	April-Sept.	6,041
Kettle near Laurier, Washington	1,960	104	April-Sept.	1,154
Spokane at Post Falls, Idaho 42/	2,950	99	April-Sept.	
Similkameen near Nighthawk, Washington a.	1,770	117	April-Sept.	641
Okanogan near Tonasket, Washington a.	1,950	113	April-Sept.	705
Methow near Pateros, Washington a.	1,200	116	April-Sept.	
Stehekin at Stehekin, Washington	1,025	113	April-Sept.	
Chelan at Chelan, Washington 43/	1,470	117	April-Sept.	589
Wenatchee at Peshastin, Washington	2,000	112	April-Sept.	855
SNAKE				
Snake above Palisades Res., Wyoming 44/	3,480	113	April-Sept.	1,037
near Heise, Idaho 45/	5,200	132	April-Sept.	
near Blackfoot, Idaho 46/	-	-	-	-
at Weiser, Idaho a.	-	-	-	-
Grey's above Palisade, Wyoming	550	142	April-Sept.	90
Salt above Palisade, Wyoming	500	137	April-Sept.	121
Henry's Fork near Ashton, Idaho 47/	-	-	-	-
Teton near St. Anthony, Idaho	-	-	-	-
Big Lost near MacKay, Idaho 48/	185	101	April-Sept.	
Little Lost near Howe, Idaho	-	-	-	-
Portneuf at Topaz, Idaho	-	-	-	-
Oakley Res. Inflow, Idaho	-	-	-	-
Salmon Falls Creek near San Jacinto, Idaho	-	-	-	-
Little Wood above High 5 Crks, Idaho	-	-	-	-
Big Wood, Inflow to Magic Res., Idaho 49/	325	108	April-Sept.	
Bruneau near Hot Springs, Idaho	-	-	-	-
Boise near Boise, Idaho 50/	1,970	122	April-Sept.	
Owyhee near Owyhee, Nevada 51/	82	121	April-July	
Owyhee Res. Net Inflow, Oregon 27/	575	113	Feb.-July	115
Malheur near Drewsey, Oregon	129	117	Feb.-July	
Payette near Horseshoe Bend, Idaho 52/	2,150	122	April-Sept.	
Weiser above Crane Creek, Idaho 40/	-	-	-	-
Burnt near Hereford, Oregon 40/	48	100	Feb.-July	
Powder near Sumpter, Oregon	59	108	April-July	
Eagle above Skull Creek, Oregon	166	95	April-July	
Imnaha at Imnaha, Oregon	317	104	April-Sept.	
Salmon at Whitebird, Idaho a.	8,300	119	April-Sept.	
Lostine near Lostine, Oregon	125	100	April-Sept.	
Grande Ronde at LaGrande, Oregon	178	90	April-Sept.	94
Clearwater at Spalding, Idaho a.	9,470	110	April-Sept.	
LOWER COLUMBIA				
Yakima at CleElum, Washington 53/	910	94	April-Sept.	
near Parker, Washington 54/	1,780	103	April-Sept.	
Naches near Naches, Washington 55/	925	104	April-Sept.	

Forecasts in California provided by Department of Water Resources.

Average is for 1958-72 period except California. California is computed for 1921-70 period.

Forecasts assume average Effective Climate Conditions from Date Through Snow Melt Season.

Explanatory Notes on Forecasts listed on Inside Back Cover.

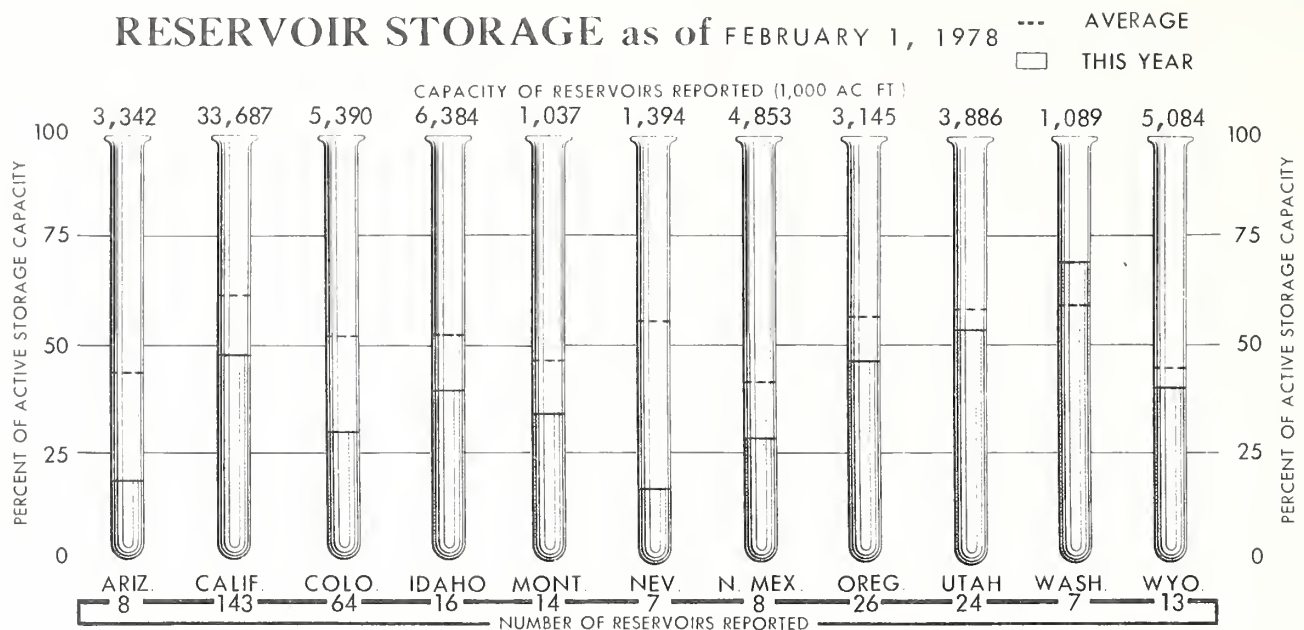
a. National Weather Service Forecast

SELECTED STREAMFLOW FORECASTS FEBRUARY 1, 1978

STREAM AND STATION	FORECASTS THIS YEAR		Forecast Period	Last Year's Flow In (1,000 A.F.)
	Flow In (1,000 A.F.)	Percent of Average		
LOWER COLUMBIA (continued)				
Walla Walla, So. Fork near Milton, Oregon	74	94	March-Sept.	72
Umatilla at Pendleton, Oregon	118	94	March-Sept.	
John Day, Middle Fork at Ritter, Oregon	129	100	March-July	
North Fork at Monument, Oregon	664	103	March-July	
Crooked near Post, Oregon	172	100	Feb.-July	
Deschutes at Benham Falls, Oregon 40/	306	85	April-July	
Columbia at The Dalles, Oregon 40/ a.	108,000	103	April-Sept.	54,130
at The Dalles, Oregon 40/ a.	93,000	104	April-July	42,939
at The Dalles, Oregon 40/ a.	76,100	104	April-June	35,577
McKenzie near Vida, Oregon	724	70	April-July	
Santiam, South, at Waterloo, Oregon	367	65	April-July	
North, at Mehama, Oregon 40/	497	65	April-July	
Clackamas at Estacada, Oregon	472	70	April-July	
Willamette at Salem, Oregon 40/	3,686	75	April-Sept.	
Lewis at Ariel, Washington 56/	1,220	92	April-Sept.	1,040
Cowlitz at Castle Rock, Washington 57/	2,855	103	April-Sept.	2,173
NORTH PACIFIC COASTAL				
Dungeness near Sequim, Washington	135	82	April-Sept.	
Umpqua, No., near Toketee Falls, Oregon 40/ a.	149	90	April-Sept.	
Roque at Raygold, Oregon	604	82	April-Sept.	401
Klamath Lake, Net Inflow, Oregon	975	108	Feb.-Sept.	493
Trinity at Lewiston, California	820	133	April-July	113
CALIFORNIA CENTRAL VALLEY 40/				
Sacramento, Inflow to Shasta, California	1,920	108	April-July	798
Feather near Oroville, California	2,330	125	April-July	397
Yuba at Smartville, California	1,210	112	April-July	198
American, Inflow to Folsom Res., California	1,505	114	April-July	233
Cosumnes at Michigan Bar, California	160	121	April-July	13
Mokelumne, Inflow to Pardee Res., California	560	120	April-July	106
Stanislaus, Inflow to Melones Res., California	860	120	April-July	120
Tuolumne, Inflow to Don Pedro Res., California	1,450	121	April-July	275
Merced, Inflow to Exchequer Res., California	800	132	April-July	128
San Joaquin, Inflow to Millerton Lake, Calif.	1,700	142	April-July	262
Kings, Inflow to Pine Flat Res., California	1,600	138	April-July	274
Kaweah, Inflow to Terminus Res., California	340	126	April-July	62
Tule, Inflow to Success Res., California	75	127	April-July	5
Kern, Inflow to Isabella Res., California	525	125	April-July	91
ALASKA				
Yukon at Eagle, Alaska	-	-	April-July	
at Ruby, Alaska	-	-	April-July	
Porcupine Near Fort Yukon, Alaska	-	-	April-July	
Salcha near Salchaket, Alaska	-	-	April-July	
Little Chena near Fairbanks, Alaska	-	-	April-July	
Chena at Fairbanks, Alaska	-	-	April-July	
Ship Creek near Anchorage, Alaska	-	-	April-July	
So.Fk.Campbell at Canyon Mouth nr Anchorage, AK	-	-	April-July	
a. National Weather Service forecast				

Forecasts in California provided by Department of Water Resources.
Average is for 1958-72 period except California. California is computed for 1921-70 period.
Forecasts assume average Effective Climate Conditions from Date Through Snow Melt Season.
Explanatory Notes on Forecasts listed on Inside Back Cover.

RESERVOIR STORAGE as of FEBRUARY 1, 1978



There is now more snow in the mountains of most of Colorado than accumulated during all of last year. Between 60 and 70 percent of the winter snow is normally on the ground by the first of February. If the present weather pattern continues there is a very good chance of refilling many reservoirs which were depleted during last year's dry spell.

Snowpack along the Continental Divide from the Wyoming border south to Monarch Pass is near 150 percent of average. The headwaters of the Colorado River, Yampa River and White River all have snowpacks of from 150 to 165 percent of normal.

The Animas and Dolores Basins picked up good precipitation during January to improve the snowpack to around 120 percent of average, and the Arkansas River Basin has 142 percent of normal. This should help significantly the water supply situation in the lower basin which continued to be plagued with drought conditions and extremely poor reservoir storage supplies.

All Front Range streams have an excellent snowpack ranging from 167 percent of normal on the St. Vrain to 129 percent on the upper headwaters of the South Platte.

Streamflow forecasts range from as much as 130 percent of normal in the north half of the state to a low of 66 percent from the Rio Grande. With reservoir storage low in the Rio Grande and Arkansas basins the outlook is for another season of shortages in this area. In the northern portion of the state the well above average forecasts of streamflow indicate that summer supplies will be adequate to abundant, even though carryover reservoir storage is below normal.

IDAHO

The water supply outlook for 1978 is good based on forecasts of ten major rivers in Idaho.

Seasonal forecasts for the April through September period range from 99 percent of average for the Spokane River to 132 percent of normal for the Snake at Heise.

Snow surveys indicate that snowfall during January was generally below average throughout Idaho. Total snowfall accumulation for the winter, however, remains near to well above normal, ranging from 95 percent of average on the Spokane River watershed to 157 percent of normal on the Blackfoot River drainage.

An isolated exception to the pattern is the Little Lost River area which reported only 66 percent of average snowpack. The Upper Snake River Basin in Wyoming, Bear River in Utah and Idaho, Blackfoot and Portneuf watersheds have a snowpack in excess of 130 percent of average.

January runoff in general was near normal, but reservoir storage continues below average. Normal climatic conditions for the remainder of the winter and spring seasons, combined with the present snowpack, should allow filling of major reservoirs on the Upper Snake and Payette rivers.

The four Boise River reservoirs are at 31 percent of capacity and stand a good chance of filling, provided that irrigation demands do not require an early drawdown.

The National Weather Service reports that mild temperatures were experienced over

STORAGE IN LARGE RESERVOIRS FEBRUARY 1, 1978

BASIN AND NAME OF RESERVOIR	CAPACITY (1,000 A.F.)	STORAGE (1,000 A.F.)	STORAGE PERCENT AVERAGE	BASIN AND NAME OF RESERVOIR	CAPACITY (1,000 A.F.)	STORAGE (1,000 A.F.)	STORAGE PERCENT AVERAGE
UPPER MISSOURI				UPPER COLUMBIA			
Belle Fourche	185	86	97	Chelan	676	275	93
Boysen	550	296	102	Coeur d'Alene	225	135	97
Buffalo Bill	373	152	92	Duncan	1,400	128	30
Canyon Ferry	2,043	1,624	99	Flathead	1,791	932	75
Fort Peck	19,140	14,290	108	Hungry Horse	3,428	1,791	72
Garrison	24,790	15,593	108	Kootenay	787	455	73
Hebgen	377	243	120	Lake Koocanusa	5,694	1,920	-
Keyhole	192	103	144	Lower Arrow	2,691	1,200	229
Lake Francis Case	5,816	3,325	104	Noxon Rapids	335	321	100
Lake Sharpe	1,900	1,772	104	Pend Oreille	1,155	138	32
Oahe	23,630	16,058	108	Roosevelt	5,232	3,149	84
Tiber	1,347	518	90	Upper Arrow	4,400	1,413	146
Bighorn Lake	1,356	899	114				
PLATTE				LOWER COLUMBIA			
So. Platte in Co (30)	1,085	516	71	Cougar	155	9.3	27
City of Denver (7)	622	311	66	Detroit	300	5.0	8
Colo-Big Thompson (3)	718	158	38	Green Peter	270	6.7	8
Glendo	784	327	104	Hills Creek	200	14.8	39
Pathfinder	1,016	382	112	Lookout Point	337	7.0	11
Seminole	1,010	368	94	Prineville	153	93	90
				Wickiup	200	149	100
ARKANSAS				Yakima Res. (5)	1,066	736	118
Conchas	273	107	58	SNAKE			
John Martin	354	2	2	American Falls	1,700	975	64
Turquoise	130	48	300	Anderson Ranch	423	76	29
Pueblo	354	2.5	-	Arrow Rock	287	156	65
RIO GRANDE				Brownlee	980	565	73
Elephant Butte	2,195	215	49	Cascade	653	274	80
New Mexico Res. (4)	571	56	78	Dworshak	2,016	867	146
UPPER COLORADO				Jackson	847	307	57
Blue Mesa	830	279	49	Lucky Peak	278	58	63
Flaming Gorge	3,749	1,938	121	Owyhee	715	260	64
Navajo	1,696	956	79	Palisades	1,200	263	34
Powell	25,002	14,729	176	Warm Springs	191	24	30
Starvation	152	140	-	PACIFIC COASTAL			
LOWER COLORADO				Clair Engle	2,448	818	42
Havasu	619	554	102	Clear Lake	440	167	81
Mead	26,159	20,974	121	Nacimiento	350	714	135
Mohave	1,810	1,682	100	Ross	1,053	1,002	172
Salt River Res. (4)	1,755	497	46	Upper Klamath	584	371	103
San Carlos	949	28	16	CALIFORNIA			
Verde River Res. (2)	318	84	66	CENTRAL VALLEY			
GREAT BASIN				Almanor	1,308	628	85
Bear	1,421	775	82	Berryessa	1,602	1,067	73
Lahontan	291	78	43	Bullards Bar	961	546	116
Rye Patch	157	46	54	Folsom	1,010	603	108
Sevier Bridge	236	72	85	Isabella	570	64	37
Strawberry	274	141	124	McClure	1,026	203	36
Tahoe	732	41	10	Millerton	521	376	102
Utah	884	603	108	Oroville	3,538	3,030	88
Willard Bay	193	115	104	Pine Flat	1,002	310	55
				Shasta	4,552	2,980	93

Reservoir Storage Data Provided by Bureau of Reclamation, Corps of Engineers, Geological Survey, and water using organizations. Data from California and British Columbia provided by Department of Water Resources and Department of Lands, Forests and Water Resources, respectively.

Idaho during January, and valley precipitation was above normal, averaging 104 percent. It ranged from 75 percent at Grace in southeastern Idaho to 161 percent at Boise. For the 1977-78 water year, Idaho stands at 116 percent of normal which is a welcome relief from last year when it was only 30 percent at this time.

The weather patterns which brought the moist air to the state also brought in above normal temperatures. Temperatures were two degrees above normal in the northern part of Idaho to eight degrees above in the southern part.

MONTANA

Most areas have average or above snowpack. Less snow was added to the pack than normal in the past month, but there is still two to four times more snow than last year.

In the Columbia River drainage, mountain snowpack varies from near average in the Kootenai, Flathead and Lower Clark Fork River drainages, to well above average in the Bitterroot, Upper Clark Fork and Blackfoot drainages.

The Missouri River drainage snowpack is highly variable. Well above average amount of snow water content was measured in the headwaters of the Madison and a small part of the Big Hole River drainage and in all of the smaller mountain ranges in central Montana. In extreme contrast, the headwaters of the Red Rock River along the Montana-Idaho border has only about two-thirds of the usual snowpack. Most of the prairie areas report a heavy snowpack.

With the exception of below average snowpack on the northeast slope of the Beartooth Mountains, all Yellowstone drainage areas have average or above amounts of water stored in the snowpack.

Streamflow for the spring and summer months is forecast to be within 10 percent of average on most streams. Exceptions are the Kootenai River, Beaverhead River, smaller areas near Butte-Anaconda, and near Red Lodge where below average runoff is expected. Above average streamflow is forecast for the Bitterroot and most of the Upper Clark Fork River drainage west of the divide. East of the divide, above average flows are expected for most of the Yellowstone River drainage and on streams draining the smaller mountain ranges of central Montana.

Most irrigation reservoirs should refill this spring with near normal irrigation water supply anticipated for most areas.

NEVADA

Prospects for an adequate water supply this season improved greatly during the month in all parts of the state and the Sierra's east slope. Snow surveys taken for February 1 indicate snowpack in the Sierra's ranges from 129 percent in the Tahoe Basin to 166 percent in the Walker Basin and is the largest since February 1, 1971. The Humboldt River and Snake River basins are 95 percent to 110 percent. All other areas are average or above.

Snowpack in the Truckee Basin is 131 percent, the Tahoe 129 percent, the Carson 146 percent, and the Walker 166 percent compared to the 1958-72 February 1 average. Snowpack distribution by elevations is fairly consistent, except for the courses on the Sierra crest. These are higher percentage-wise. Snowpack on the western side of the Sierra's is much higher than on the eastern side.

Streamflow forecasts indicate that flows will be above average during the April 1 to July 31 period. They have been made with the assumption that average precipitation will occur during the remainder of the season.

Snowpack conditions improved considerably during the month and are now near average in the Humboldt and its tributaries. Streamflow forecasts range from 77 percent to 109 percent, assuming average precipitation for the remainder of the season.

The Owyhee River and Snake River drainages have snowpacks near 110 percent. This is improved from last month. Streamflow forecasts on the Owyhee River near Owyhee, Nevada, is 82,000 acre-feet. Average precipitation is needed to sustain this forecast.

The Warner Mountains west of Surprise Valley have snowpacks slightly above average. Aerial marker readings along the Nevada-Oregon border indicate snowpack conditions much above average. Aerial markers in eastern and central Nevada indicate slightly below average snowpack. More intensive ground readings next month will give a better account of the snowpack.

Reservoir storage improved slightly during the month but the seven major reservoirs serving the state are still only 28 percent of average as compared to last year's 43 percent. Lake Tahoe has usable storage of only 41,000 acre-feet.

NEW MEXICO

The outlook for this spring's water supply is for flows 25 to 35 percent below normal and similar to last year's runoff. Poor

snowfall in the mountains has resulted in a deficient snowpack in the San Juan Mountains and most of the Sangre de Cristo Range.

The snowpack in the Rio Grande Basin in New Mexico is below average and about the same as this time a year ago. Snow surveys at over 20 locations in the mountains reveal that snows have accumulated to a level 72 percent of normal for this time of year.

Snow in the Sangre de Cristo Range is near to slightly below normal. Headwaters of the Rio Chama have a near normal snowpack. If the present conditions prevail, the water supply picture will be similar to last year's.

Snowpack in the Colorado portion of the Rio Grande Basin is only 75 percent of normal. Heavy snows are needed for the remainder of the snow season in order to generate a near normal runoff in the spring. About two months remain the snow accumulation season.

Storage in major reservoirs remains below normal and is a reflection of the drawdown necessitated by last year's dry conditions. Storage in Elephant Butte Reservoir is currently only 49 percent of normal.

OREGON

The outlook for spring and summer water supplies in Oregon is much improved over last year. Water supply forecasts range from 65 percent to 90 percent of normal for most streams originating in the Cascades and Siskiyou Mountains. This general outlook for western Oregon is for below average streamflow. Central Oregon, from California to the Columbia River, and northeastern Oregon should have normal water supplies. Streamflow in these areas should range from 90 percent to 110 percent of average. Southeastern Oregon in the Malheur and Owyhee area is forecast for above average water supply up to about 120 percent of normal.

If near normal rain and snowfall is received during the rest of the winter, no serious shortages are anticipated.

The snowpack on western Oregon watersheds is 40 to 75 percent of normal. Central Oregon is about average, and southeastern Oregon is above average. Snow has been restricted to the higher elevations particularly in western Oregon. Precipitation below 4000 feet has been primarily rain in much of the state. Total precipitation has been above average over the entire state for the winter season.

Twenty-six major reservoirs throughout the state have a storage of 1,484,000 acre feet or 82 percent of the February 1 average. Reservoir supplies should be adequate to meet spring and summer needs.

UTAH

Utah's 1978 water supply outlook ranges from below average in the southern and eastern part of the state, to near average for central and northern Utah. Snow cover ranges from 94 percent of average on the Escalante drainage to 148 percent on the Upper Bear River. Reservoir storage is 90 percent of average and 22 percent less than a year ago. Watershed soil moisture is below average.

Snow cover improved at a faster than normal rate in southern Utah during the past 30 days bringing those basins up to near average or a little above average for February 1. The Upper Sevier is now 105 percent of average, Beaver River 132 percent, Virgin River is 147 percent, although weighted heavily by one low elevation measurement at Long Valley Junction, which should melt prior to April 1. The lower Sevier is 130 percent, San Rafael 133 percent, Price River 142 percent, and Duchesne River 112 percent of average. Provo River snow cover is now 119 percent of average. Watersheds above Salt Lake are now 112 percent, Weber River 116 percent, Ogden 131 percent, and the Lower Bear River 138 percent of the February 1 average. The LaSal and Blue Mountains snow cover is near the March 1 average as of this time.

Precipitation at mountain stations ranged from about two-thirds average to 130 percent of average in northern Utah, to as much as three times average at some locations in southern Utah during January.

Soil moisture is generally below average statewide. Fall rains recharged the top 12-24 inches in some locations, but the remainder of the profile is reported as very dry. These dry soils are expected to reduce spring snowmelt runoff.

Streamflow forecasts range from 76 percent of average for the Sevier below Piute to 138 percent for the Inflow to Scofield Reservoir. Forecasts range from 10 to 20 percent below average on Sevier and Uintah Basin streams to generally average to 15 to 20 percent above average on all other streams. Bear River is forecast 101 percent of the April-July average at the Utah-Wyoming State Line and 105 percent at Harer, Idaho, while the Logan River is forecast at 109 percent of average. The Provo River is forecast at 104 percent at Hailstone, Strawberry Inflow is expected to be 115 percent of average, and Utah Lake Inflow 101 percent of the April-July average. The San Juan near Bluff is forecast to yield 103 percent of normal.

Reservoir storage is generally below average. Storage in 24 of Utah's irrigation reservoirs is now 90 percent of the February

1 average, 22 percent less than a year ago, and only 53 percent of usable capacity. Many reservoirs in southern and eastern Utah are not expected to fill this year.

WASHINGTON

A near-average water supply is forecast for Washington, a dramatic turn around from the drought conditions of last year. Heavy rains in December depleted much of the snowpack on the Cascades, and the snowpack remains low. Well above normal snowpacks have occurred only at a few isolated low elevation type watersheds on the east side of the Cascades. While the remaining east side watersheds have normal or above snowpacks, the west and southwest watersheds all have below normal snowpacks as of February 1. The poorest snow covers are in the Lewis River drainage and the Elwha drainage on the Olympic Peninsula.

East of the Cascades, only the Spokane River drainage has a below normal snowpack while the other drainages all have normal to above normal conditions for February 1. The Olympic Peninsula snowpack is 54 percent of normal.

Forecasts of snowmelt streamflow are for generally near normal amounts and range from 82 percent of normal for the Dungeness River near Sequim to a high of 19 percent above normal for the Entiat River near Ardenvoir.

Storage in irrigation and power reservoirs varies from excellent to poor. The Yakima reservoirs have excellent storage. The Okanogan impoundments remain below normal, however. Power reservoir storage is variable, with only Ross Reservoir in the Skagit drainage indicating an above normal amount.

WYOMING

Average to excellent water supplies are forecast for the spring and summer months in Wyoming. The state currently boasts of a generous snowpack in most areas--and the promise of relief from last year's drought conditions.

With 60 percent of the accumulation period lapsed, the snowpack ranges from near average in the northeast portion of the state to 50 percent above normal in the northwest and southeast mountains. Many areas have five or six times as much snow this year as the same time last year. The only low spot in the state is the Greybull drainage with half the normal amount--but that is still 40 percent more than last year.

Precipitation at lower elevations has been up to 50 percent above normal for the winter season in the northeast quarter and western border areas of the state with normal or slightly below normal precipitation totals elsewhere. The only really dry areas with less than one-half the normal precipitation totals at this point in the season are the Laramie-Wheatland area in the southeast and a small area of the Bighorn Basin in the shadow of the Owl Creek Mountains.

If the state receives normal amounts of precipitation during the spring months, average to excellent streamflow volumes can be expected throughout the state. Volume forecasts for the spring and summer months range from slightly above average in the Powder, Bighorn and Lower Green River basins to 30-50 percent above normal in the North Platte, Snake, Upper Green and Wind River basins.

Carryover storage in many of the large reservoirs in the state is below normal. Pali-sades is currently 66 percent below the February 1 average. Storage in the Wind, Bighorn and North Platte systems is slightly above normal.



EXPLANATION of STREAMFLOW FORECASTS

All flows are observed flows except as adjusted for: 1/ Storage change in Lake Sherburne. 2/ Storage change in Lima and Clark Canyon reservoirs. 3/ Storage change in Hebgen Lake. 4/ Storage change in Gibson Reservoir and measured diversions. 5/ Storage change in Two Medicine, Four Horns, Lake Francis and Swift reservoirs. 6/ Storage change in Canyon Ferry and Tiber reservoirs. 7/ Changes as indicated in (6/), (8/), plus storage change in Fort Peck. 8/ Storage change in Boysen, Buffalo Bill, Bull Lake and Yellowtail reservoirs. 9/ Storage change in Buffalo Bill Reservoir plus Heart Mountain diversion. 10/ Storage change in Pilot Butte and Bull Lake reservoirs plus Wyoming canal diversion.

11/ Changes indicated in (10/) plus storage change in Boysen Reservoir. 12/ Plus diversions to Cache LaPoudre. 13/ Plus by-pass to power plants. 14/ Minus diversion thru Gumlick Tunnel. 15/ Storage change in Price Reservoir. 16/ Minus diversions from North Platte, Laramie and Colorado rivers plus measured diversions above station. 17/ Storage change in Clear Creek, Twin Lakes and Turquoise reservoirs minus diversions from Colorado River. 18/ Storage change in Rio Grande, Santa Maria and Continental reservoirs. 19/ Storage change in El Vado and Abiquiu reservoirs. 20/ Storage change in Platoro Reservoir.

21/ Storage change in Grandby Reservoir as furnished by U.S.B.R. plus diversions by Adams Tunnel and Grand River Ditch. 22/ Changes as indicated in (21/) plus diversions thru Roberts, Gumlick and Moffat tunnels and storage change in Dillon, Homestake, Williams Fork, Green Mountain and Willow Creek reservoirs. 23/ Changes indicated in (22/) and (26/). 24/ Storage change in Blue Mesa Reservoir. 25/ Changes indicated in (24/), (30/) and (35/) and storage change in Lake Powell. 26/ Diversions to Arkansas River plus storage change in Ruedi Reservoir. 27/ (Inflow record as computed by U. S. Bureau of Reclamation.) 28/ Storage change in Taylor, Blue Mesa and Morrow Point reservoirs. 29/ Storage change in Fontenelle Reservoir. 30/ Storage change in Flaming Gorge Reservoir.

31/ Plus diversion through Duchesne Tunnel. 32/ Storage change in Moon Lake Reservoir. 33/ Storage change in Scofield Reservoir. 34/ Storage change in Joe's Valley Reservoir. 35/ Storage change in Navajo Reservoir. 36/ Plus U. P. & L. Co. tailrace and Logan, Hyde Park and Smithfield canals. 37/ Minus diversions thru Duchesne Tunnel and Weber-Provo Canal. 38/ Storage change in Lake Tahoe and Boca reservoirs (Forecast by Truckee Basin Committee.) 39/ Storage change in Bridgeport Reservoir. 40/ Corrected for major upstream impairments -- represents simulated natural flow conditions.

41/ Storage change in Priest Lake. 42/ Storage change in Coeur d'Alene Lake and diversions by Spokane Valley Farms Co. and Rathrum Prairie canals. 43/ Storage change in Lake Chelan. 44/ Storage change in Jackson Lake. 45/ Storage change in Jackson Lake and Palisade reservoirs. 46/ Storage change in Jackson Lake, Palisades, Island Park, Henry's Lake, Grassy Lake plus diversions between Heise and Blackfoot. 47/ Storage change in Henry's Lake and Island Park reservoirs. 48/ Storage change in Mackay Reservoir and diversion in Sharp Ditch. 49/ Combined flow Big Wood near Bellevue and Camas Creek near Blaine. 50/ Storage change in Arrowrock, Anderson Ranch and Lucky Peak reservoirs.

51/ Storage change in Wild Horse Reservoir. 52/ Storage change in Cascade and Deadwood reservoirs. 53/ Storage change in Keechelus, Kachess and CleElum reservoirs plus diversion by Kittitas Canal. 54/ Changes indicated in (52/) plus storage change in Bumping and Rimrock Lakes plus diversion by Roza, Union Gao, New Reservation, Old Reservation and Sunrise canals. 55/ Storage change in Bumping and Rimrock lakes and diversions by Tieton, Selah Valley, Wapatox canals and City of Yakima. 56/ Storage change in Merwin, Yale and Swift reservoirs. 57/ Storage change in Mayfield Reservoir.

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